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Cry j1 PEPTIDE

MEAN STIMULATION INDEX	APPEARANCE FREQUENCY (%)	POSITIVITY INDEX (MEAN STIMULATION INDEX x APPEARANCE FREQUENCY (%))
0	300	600
1	600	600
2	900	1200

NO.	POSITION	AMINO ACID SEQUENCE	12.6	100.0	
Cryj1	1-353	DNPIDSCWRGDSNWA	4.0	11.1	
1	1- 15	SCWRGDSNWAQNRMK	5.0	22.2	
2	6- 20	DSNWAQNRMKLADCA	10.9	5.6	
3	11- 25	QNRMKLA LADCAVGFGS	6.1	61.1	
4	16- 30	VGFGS STMGGKGDL	4.0	5.6	
5	21- 35	YTVTNS SDDDPVNP	<2	0.0	
6	26- 40	SDDDPVNP VNPAPGTL	<2	0.0	
7	51- 65	GTLRYGATRDRPLWI	4.3	5.6	
8	56- 70	GATRDRPLWIIIFSGN	8.9	16.7	
9	61- 75	RPLWIIIFSGNMNIKL	4.4	50.0	
10	66- 80	IFSGNMNIKL KMPMY	4.4	33.3	
11	71- 85	MNIKIKMP KMPYIAGYK	3.4	11.1	
12	76- 90	KMPYIAGYKTFDGR	4.7	61.1	
13	81- 95	IAGYKTFDGRGAQVY	5.9	27.8	
14	86-100	TFDGRGAQVYIGNGG	5.4	50.0	
15	91-105	GAQVYIGNGGPCVFI	7.6	16.7	
16	101-115	IGNGGPCVFIKRVSN	<2	0.0	
17	106-120	PCVFIRKRVSNVIIHG	8.0	72.2	
18	111-125	KRVSNSVIIHGLHYLG	6.4	55.6	
19	116-130	VIIHGLHYLG CSTSVLGVLN	8.1	33.3	
20	121-135	LHLYGC CSTSVLGVLN	6.1	11.1	
21	126-140	LNVLINESFG CSTSVLGVLN	<2	0.0	
22	131-145	LNVLINESFG VEPV	7.1	22.2	
23	136-150	INESFG VEPVHPQDG	<2	0.0	
24	141-155	GVEPVHPQDG DALTLRATN	7.6	27.8	
25	146-160	HPQDG DALTLRATN	6.9	38.9	
26	151-165	DALTLRATNI IWIDHNSFSN	4.2	44.4	
27	156-170	RTATNI IWIDHNSFSN	2.6	5.6	
28	161-175	IWIDHNSFSN SSDGL	<2	0.0	
29	166-180	NSFSNS SSDGLVDVTL	<2	0.0	
30	171-185	SSDGLVDVTL SSTGV	<2	0.0	
31	176-190	VDTVLSS SSTGV	<2	0.0	
32	181-195	SSTGV TISNNLFF	<2	0.0	
33	190-200	TISNNLFF NHKVML	3.0	22.2	
34	191-205	LFFNNHHK VVMLLGHDD	5.3	38.9	
35	196-210	HKVMLLGH DDAYSDD	4.9	16.7	
36	201-215	LGHDDAYS SDDDKSMKV	4.7	11.1	
37	206-220	AYSDDKSM KVTVAFVN	8.7	38.9	
38	211-225	KSMKV TVAFNFQFGPNC	9.4	72.2	
39	216-230	QFGPNC GORMPRARY	5.7	11.1	
40	221-235	QFGPNC GORMPRARY	<2	0.0	
41	226-240	CGORMP RARYGLVHV	2.9	11.1	
42	231-245	PRARYGLV HVANNNY	5.2	38.9	
43	236-250	GLVHVANN NNDPWTI	5.1	27.8	
44	241-255	ANNNYDP WTIYAIGG	2.3	11.1	
45	246-260	DPWTIYA AIGGSSNPT	5.4	22.2	
46	251-265	YAIGGSSN PTILSEG	6.7	33.3	
47	256-270	SSNPTIL SEGN SFTA	4.6	22.2	
48	261-275	ILSEGN SFTA PNESYK KQVTK	6.2	44.4	
49	266-280	NSFTAP PNESYK KQVTK	5.3	33.3	
50	271-285	PNESYK KQVTK TIRIGC	4.6	22.2	
51	276-290	KQVTK TIRIGC KTS	2.7	5.6	
52	281-295	IRIGC KTS SSCSNW	<2	0.0	
53	286-300	RTSSSC SNWVWQ SFTA	2.5	5.6	
54	291-305	CSNWVWQ SFTA STQDVFY	2.5	16.7	
55	296-310	WQSTQDV FYNGAY FV	4.0	16.7	
56	301-315	DVFYNGAY FVSSGKY	4.3	55.6	
57	306-320	GAYFVSS GKYEGGNI	4.7	33.3	
58	311-325	SSGKYEG GNIYTKKE	5.0	11.1	
59	316-330	EGGN NIYTKKEAF NVE	5.6	50.0	
60	321-335	YTKKEAF NVENG NAT	3.9	27.8	
61	326-340	AFNV ENG NATPQL	8.5	33.3	
62	331-345	NGNATPQL TKNA GVL	6.8	44.4	
63	336-350	PQLTKNA GVLTC SLS	4.3	22.2	
64	339-353	TKNAGVL TCSSL KRC	4.1	16.7	

FIG. 1

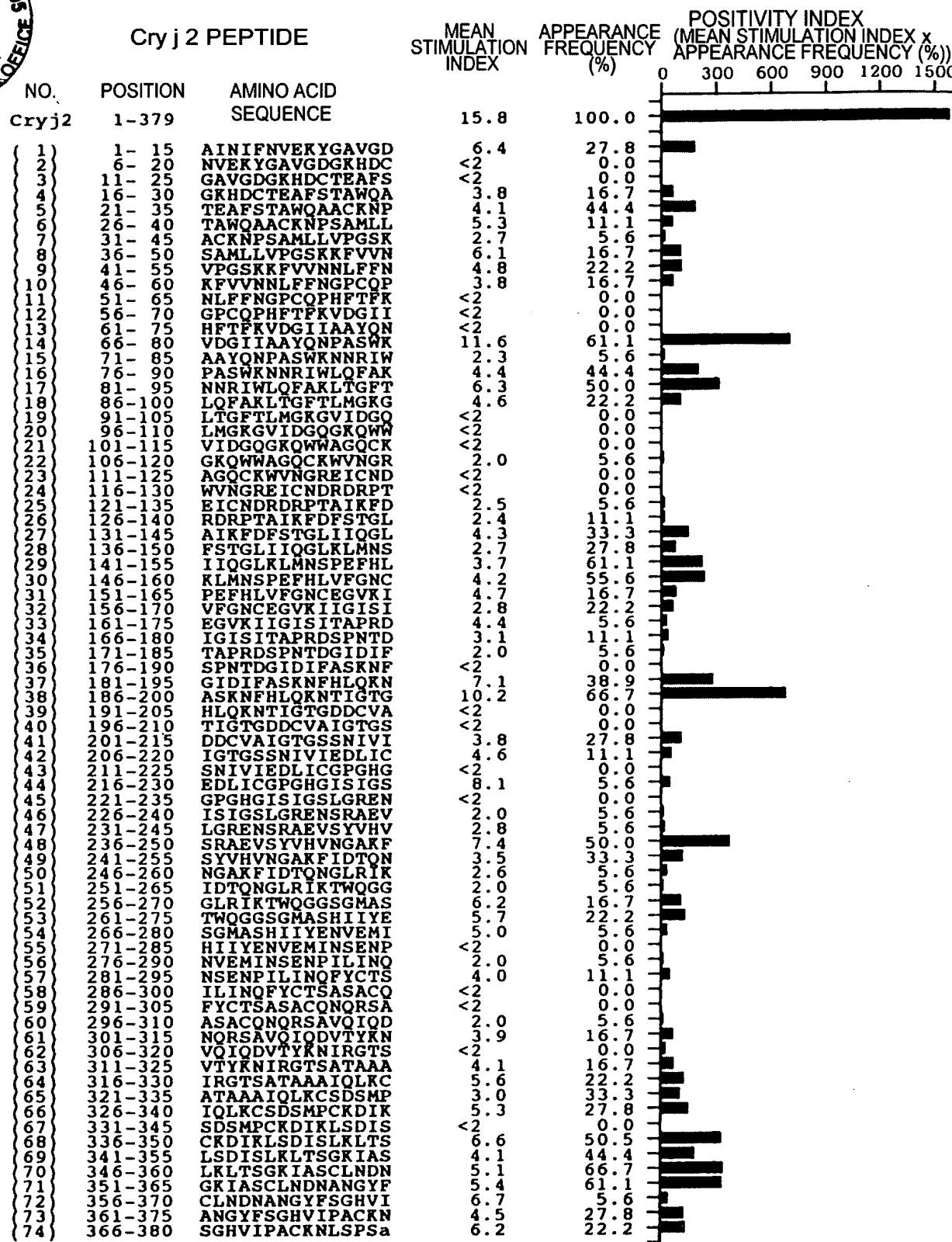
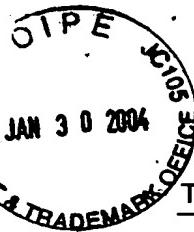


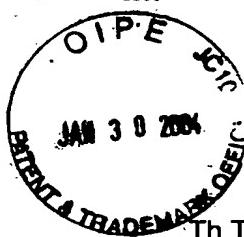
FIG. 2



Th TYPE OF T CELL CLONE CAPABLE OF RECOGNIZING Cry j 1

T CELL CLONE	EPITOPE SITE NO. POSITION	RESTRICTION MOLECULE	LYMPHOKINE PRODUCTION (pg/ml)			Th* TYPE
			IL-2	IFN γ	IL-4	
PJ4-6	4 16- 30	DQA1*0102 DQB1*0602	<31	1500	334	Th0
PB8-1	4 16- 30	"	<31	<31	814	Th2
PB9-37	13 61- 75	DPA1*0101-DPB1*0501	<31	<31	7760	Th2
PB10-24	13 61- 75	"	39	151	4500	Th2
PJ1-27	19 91-105	DQ	32	1220	224	Th0
PB3-27	22 106-120	DRB5*0101	250	332	21000	Th2
PB8-2	22 106-120	"	190	2110	5709	Th0
PB8-3	22 106-120	"	<31	1270	10100	Th0
PB9-39	22 106-120	"	48	51	5120	Th2
PB10-18	22 106-120	"	410	46	7840	Th2
PJ4-29	22 106-120	"	4680	14200	6610	Th0
PJ7-9	22 106-120	"	1370	1040	12200	Th2
PJ5-6	30 145-160	DQA1*0102-DQB1*0602	1500	1170	5920	Th0
PJ5-9	30 145-160	"	1720	825	266	Th0
PB11-21	31 151-165	DRB1*0901	4190	>20000	4510	Th0
PB11-24	31 151-165	"	670	11700	1950	Th0
PB6-37	31 151-165	"	<31	<31	49	Th2
PB1-8	39 191-205	DQA1*0102-DQB1*0602	820	188	1760	Th0
PB9-34	39 191-205	DRB1*0901 OR DRB4*0101	<31	86	1680	Th2
PB2-14	43 211-225	DPA1*0101-DPB1*0501	<31	376	2320	Th0
PB7-2	43 211-225	"	84	2740	2080	Th0
PB8-32	43 211-225	"	<31	4870	1840	Th0
PB8-34	43 211-225	"	78	14800	3040	Th0
PB11-23	43 211-225	"	<31	3990	1260	Th0
PB11-26	43 211-225	"	32	1100	6520	Th0
PB4-20	43 211-225	"	<31	<31	133	Th2
PB10-4	43 211-225	"	<31	<31	4170	Th2
PB8-4	51 251-265	DQA1*0102-DQB1*0602	44	36	4050	Th2
PJ4-20	66 326-340	DQA1*0102-DQB1*0602	560	3080	<32	Th1

* IL-4/IFN- γ > 10 AND IFN- γ /IL-4 > 10 ARE DEFINED TO BE Th2 AND Th1, RESPECTIVELY, AND Th0 MEANS INBETWEEN.



Th TYPE OF T CELL CLONE CAPABLE OF RECOGNIZING Cry j 2

T CELL CLONE	EPITOPE SITE NO. POSITION	RESTRICTION MOLECULE	LYMPHOKINE PRODUCTION (pg/ml)			Th* TYPE
			IL-2	IFN γ	IL-4	
PB5-29	4 16- 30	DRB1*0901 OR DRB4*0101	<31	503	97	Th0
PB11-40	4 16- 30	"	<31	<31	50	Th2
PB14-4	4 16- 30	"	<31	<31	<16	Thp
PB12-33	8 36- 50	DRB1*1501	<31	>8000	<16	Th1
PR2-25	8 36- 50	"	47	<31	977	Th2
PR5-40	8 36- 50	"	1150	1330	355	Th0
PB3-32	14 66- 80	DRB5*0101	<31	<31	323	Th2
PB4-21	14 66- 80	"	<31	109	239	Th0
PB4-22	14 66- 80	"	<31	483	158	Th0
PC1-8	14 66- 80	"	<31	2710	32	Th1
PR4-20	14 66- 80	"	<31	312	338	Th0
PR3-21	14 66- 80	"	<31	<31	338	Th2
PB13-18	17 76- 90	DPA1*0101-DPB1*0501	<31	3320	231	Th1
PB11-32	17 76- 90	"	138	60	2090	Th2
PR1-20	31 151-165	DRB1*0901	<31	<31	18	Th2
PR4-39	31 151-165	"	<31	<31	<16	Thp
PB14-5	37 181-195	DPA1*0101-DPB1*0201	87	126	469	Th0
PB14-13	37 181-195	"	<31	59	2440	Th2
PB14-34	38 186-200	DRB4*0101	186	420	93	Th0
PC3-40	38 186-200	"	<31	<31	379	Th2
PB5-3	48 236-250	DRB1*1501 OR DRB5*0101	2570	>8000	525	Th1
PR2-34	65 321-335	DRB1*0901	57	1990	464	Th0
PR3-30	66 326-340	DQA1*0102-DQB1*0602	<31	106	<80	Th1
PR5-18	66 326-340	"	<31	<31	<16	Thp
PC1-13	68 336-350	DPA1*0202-DPB1*0501	<31	<31	<16	Thp
PB12-8	69 341-355	DQA1*0102-DQB1*0602	<31	3210	<16	Th1
PR5-12	69 341-355	"	<31	<31	2528	Th2
PR2-31	69 341-355	"	<31	<31	332	Th2
PB14-19	70 346-360	"	<31	3730	<16	Th1
PB13-38	70 346-360	"	<31	2020	<16	Th1

* IL-4/IFN- γ > 10 AND IFN- γ /IL-4 > 10 ARE DEFINED TO BE Th2 AND Th1, RESPECTIVELY, Th0 MEANS INBETWEEN, AND Thp MEANS NOT SHOWING THE PRODUCTION OF LYMPHOKINE.

FIG. 4

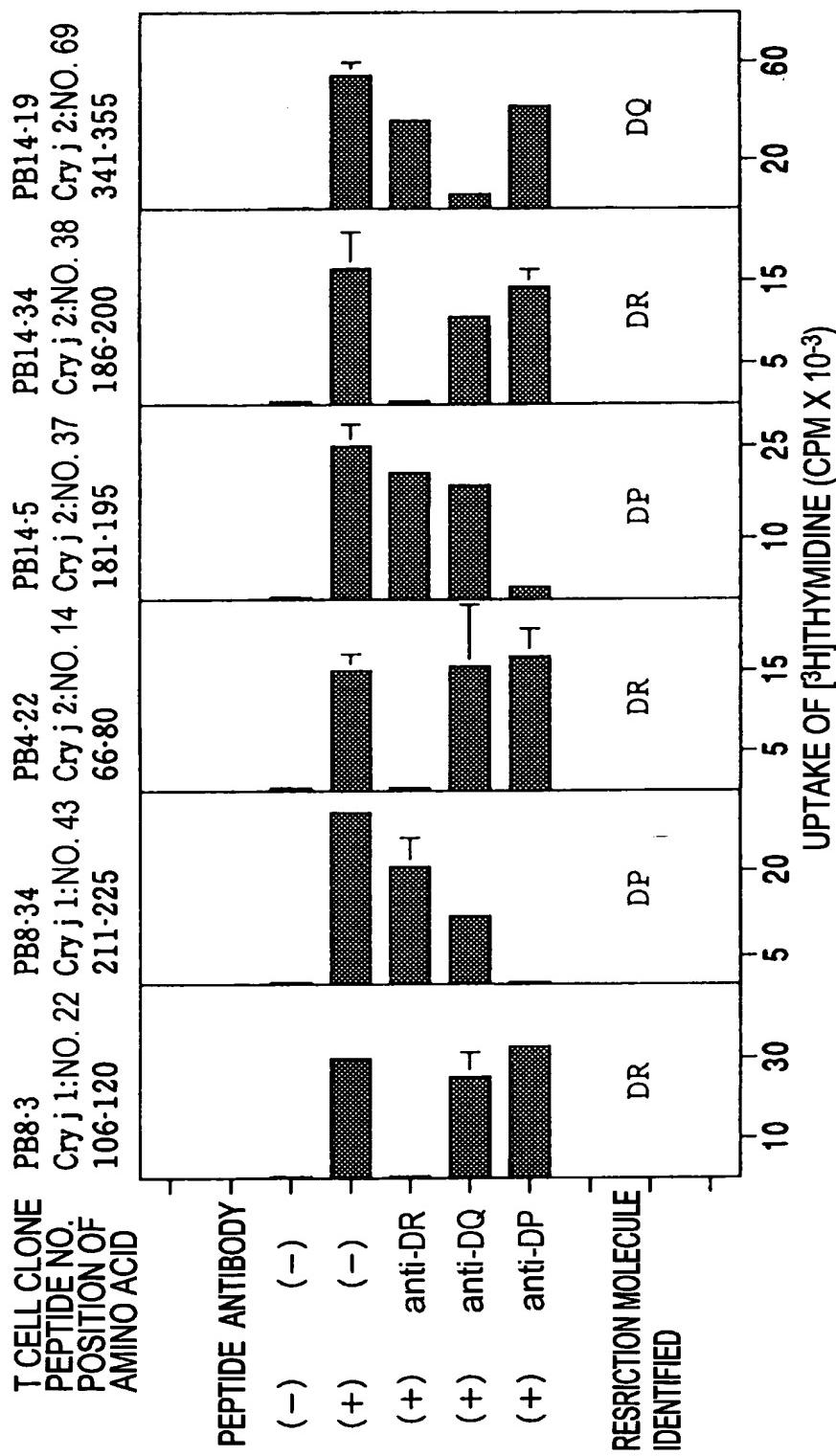
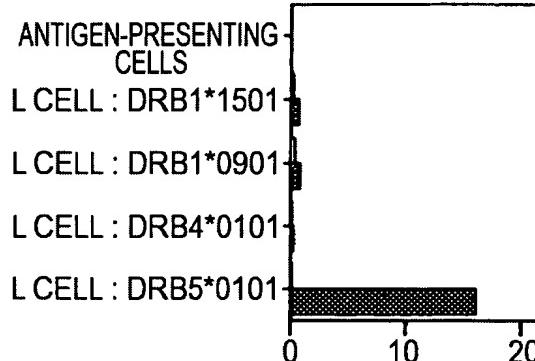


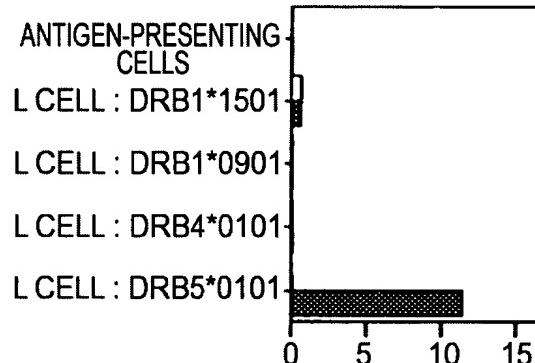
FIG. 5



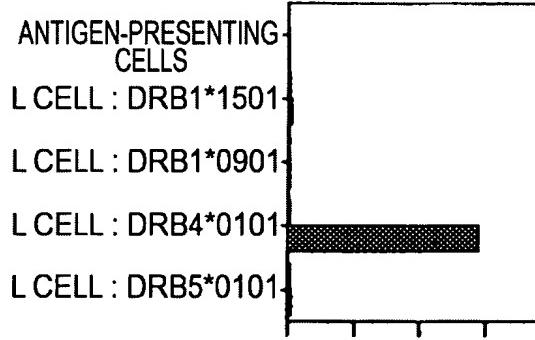
T CELL CLONE:PB8-3 Cry j 1 p106-120



T CELL CLONE:PB4-22 Cry j 2 p66-80

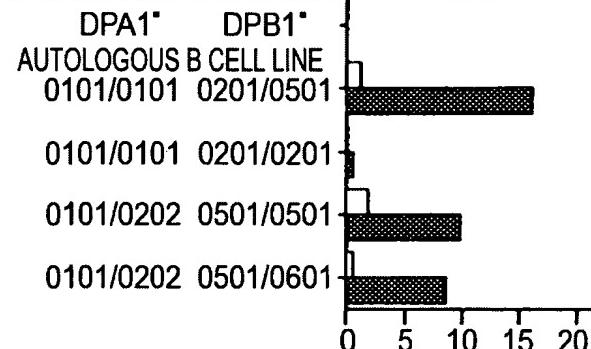


T CELL CLONE:PB14-34 Cry j 2 p186-200

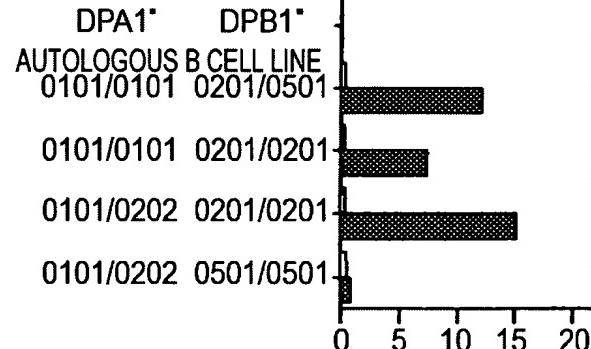


WITHOUT PEPTIDE
 WITH PEPTIDE

T CELL CLONE:PB8-34 Cry j 1 p211-225
 ANTIGEN-PRESENTING CELLS



T CELL CLONE:PB14-05 Cry j 2 p181-195
 ANTIGEN-PRESENTING CELLS



T CELL CLONE:PB14-19 Cry j 2 p341-355
 ANTIGEN-PRESENTING CELLS

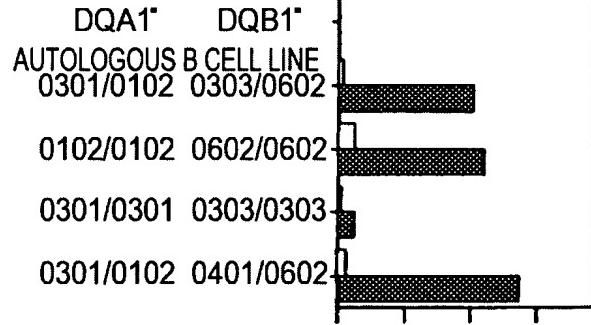
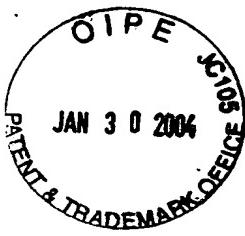


FIG. 6



a	Lys Ser Met Lys Val Thr Val Ala Phe Asn Gln Phe Gly Pro Asn
b	Pro Cys Val Phe Ile Lys Arg Val Ser Asn Val Ile Ile His Gly
c	Val Asp Gly Ile Ile Ala Ala Tyr Gln Asn Pro Ala Ser Trp Lys
d	Gly Ile Asp Ile Phe Ala Ser Lys Asn Phe His Leu Gln Lys Asn Thr Ile Gly Thr Gly
e	Leu Lys Leu Thr Ser Gly Lys Ile Ala Ser Cys Leu Asn Asp Asn Ala Asn Gly Tyr Phe

FIG. 7



REACTIVITY OF PEPTIDE COMPOSITIONS (#1 - #6) WITH HUMAN IgE

SAMPLE NO. (SERAS)	BLANK	CEDAR POLLEN-EXTRACTED ANTIGEN	C.A. # 1	C.A. # 2	C.A. # 3	C.A. # 4	C.A. # 5	C.A. # 6
1	3	2105	5	4	3	4	4	4
2	3	1133	4	4	4	4	4	4
3	3	1126	3	3	3	4	4	3
4	3	1095	4	3	3	3	3	3
5	3	1047	3	3	3	3	3	3
6	3	1003	3	4	3	3	3	3
7	4	710	4	4	4	4	4	4
8	3	521	3	3	3	3	3	3
9	3	314	3	3	4	3	4	4
10	3	298	3	3	4	4	4	3
11	3	279	3	3	3	3	3	3
12	3	253	3	3	3	3	3	3
13	3	239	3	3	3	3	3	3
14	3	235	4	4	3	3	3	3
15	3	233	3	3	3	3	4	3
16	3	226	4	4	3	3	3	3
17	3	190	3	3	3	3	3	3
18	3	162	4	4	4	4	4	4
19	3	123	3	3	3	3	3	3
20	3	106	3	3	3	3	4	3
21	4	45	3	3	3	3	3	4
22	3	14	3	3	3	3	3	3
23	3	13	3	3	3	3	3	3
24	3	11	3	3	3	3	3	3
25	3	5	4	3	3	3	4	4
26	3	4	4	4	3	4	4	3
27	3	3	3	3	3	3	3	3
28	3	3	3	3	3	3	3	3
29	3	3	4	3	3	3	3	3
RABBIT anti-PEPTIDE IgG	112	230	3754	3829	3769	3716	3841	3798

FIG. 8

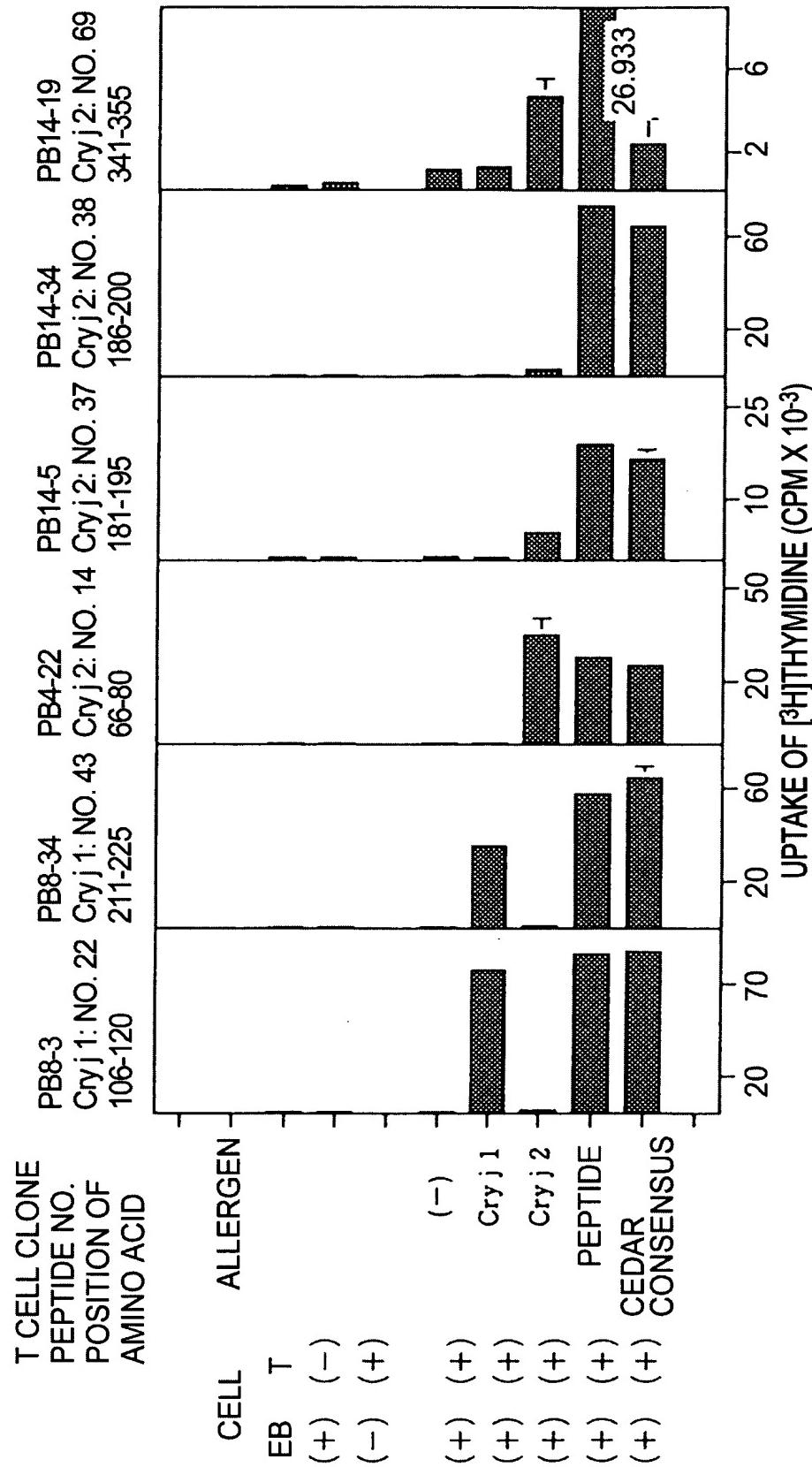


FIG. 9

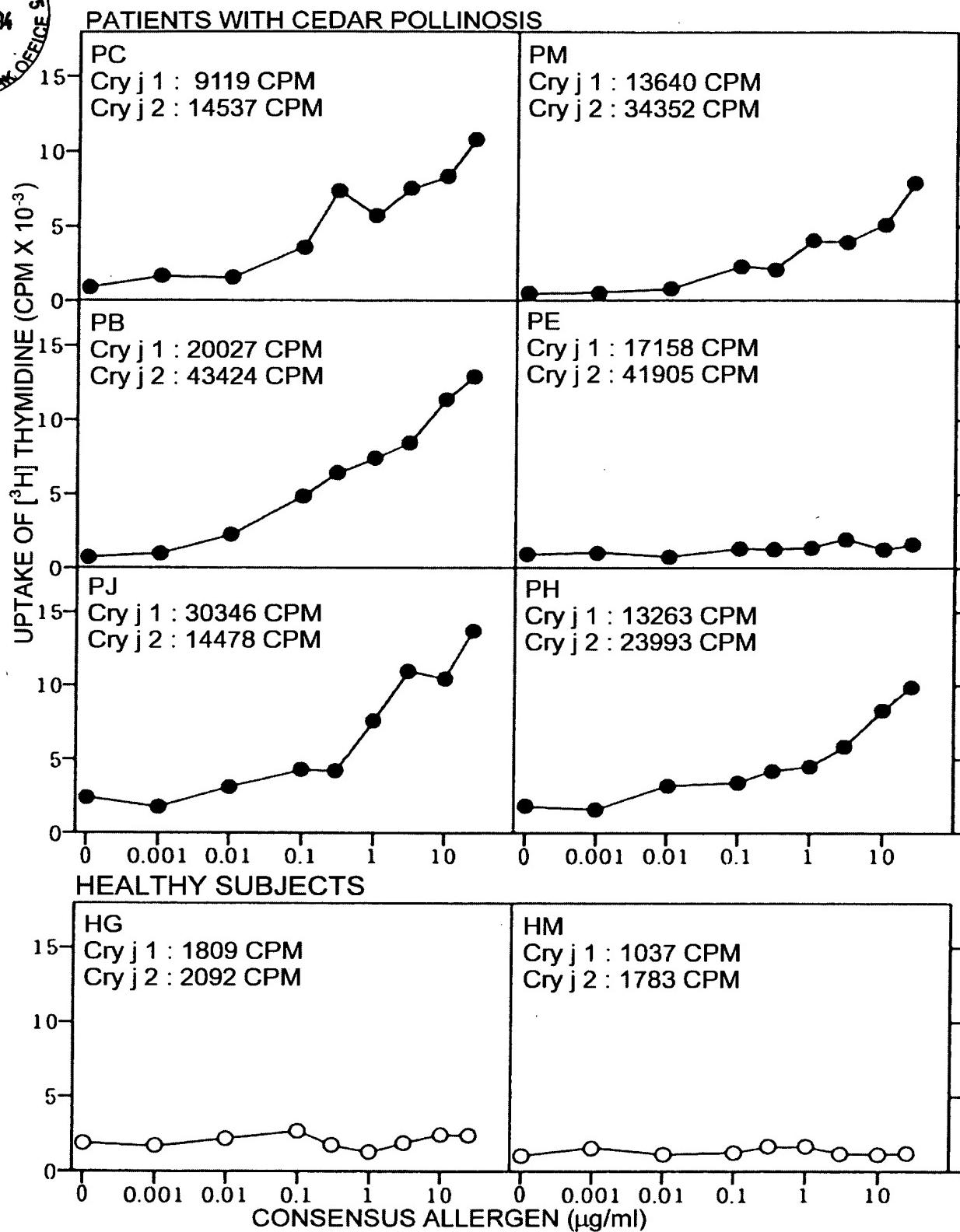
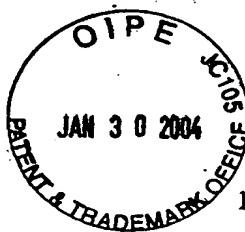


FIG. 10

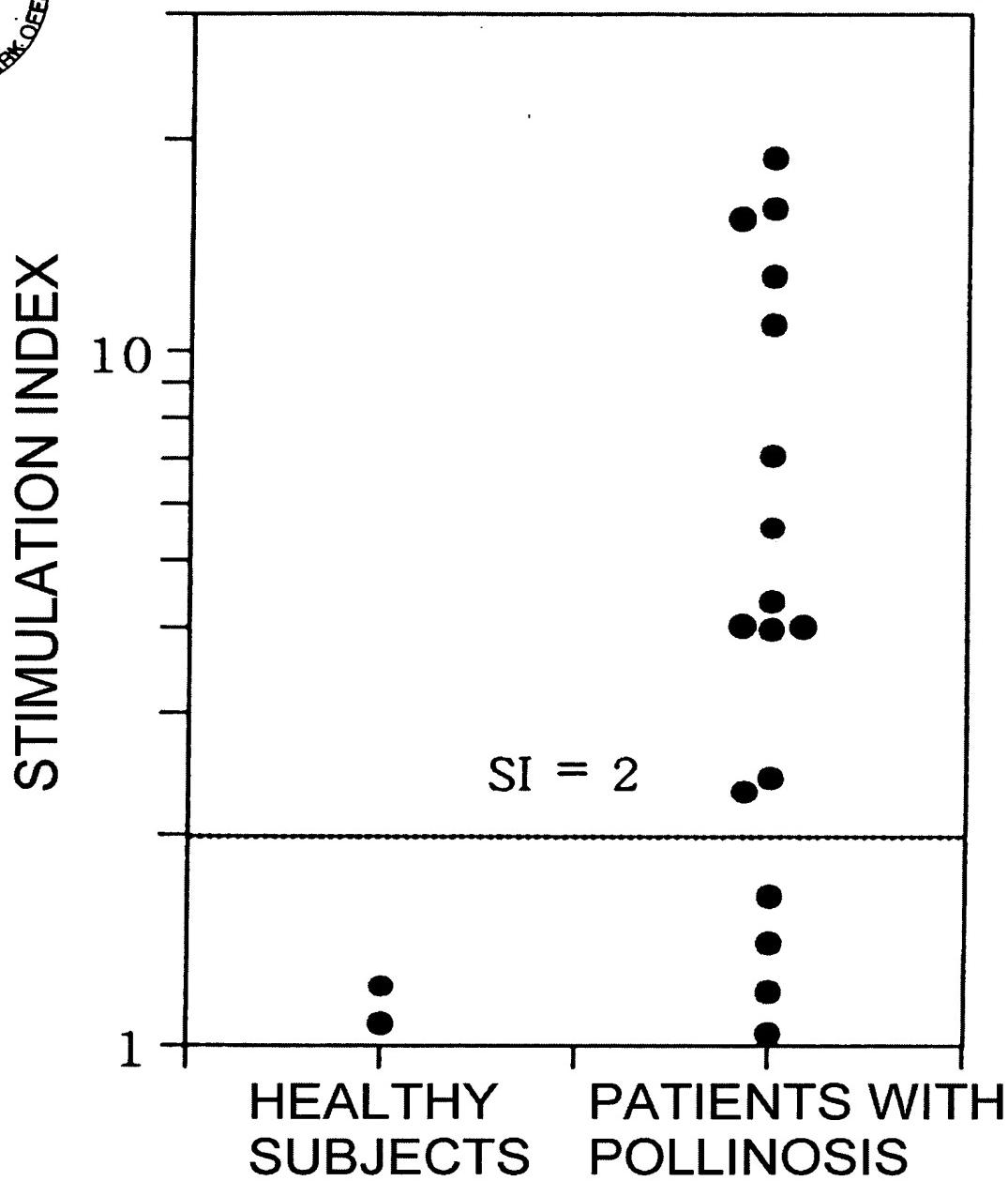


FIG. 11

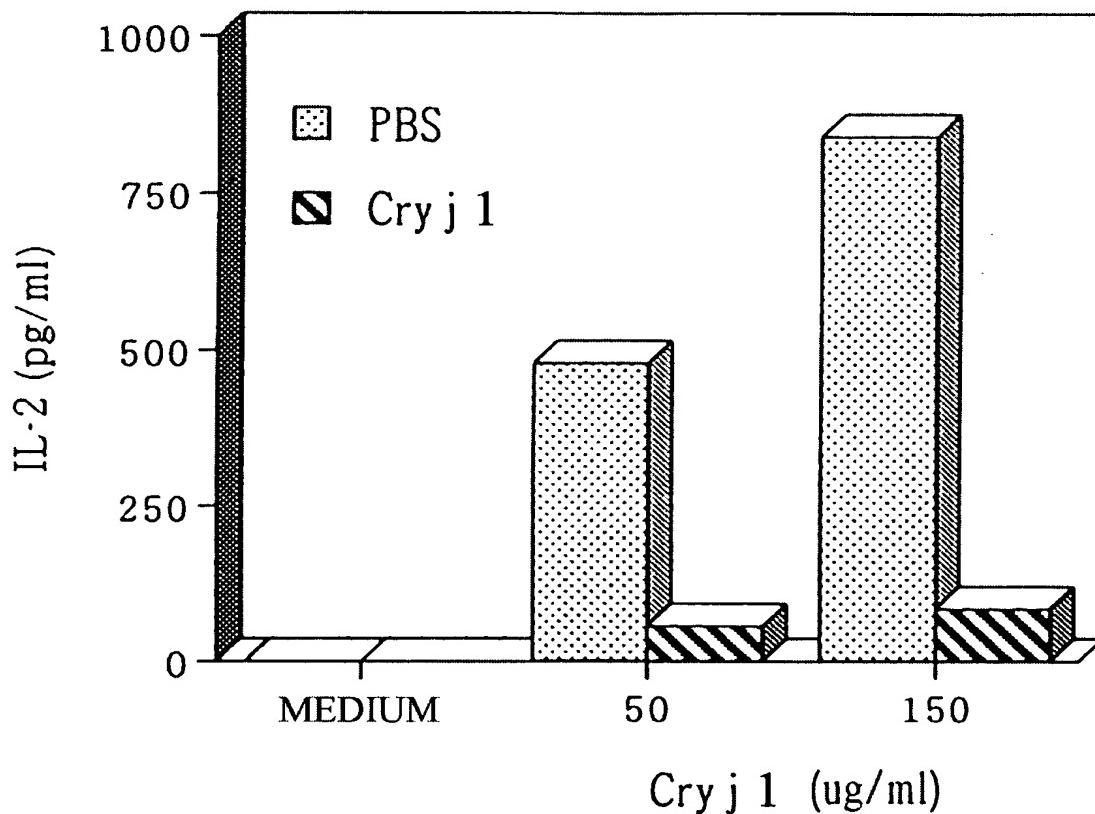


FIG. 12

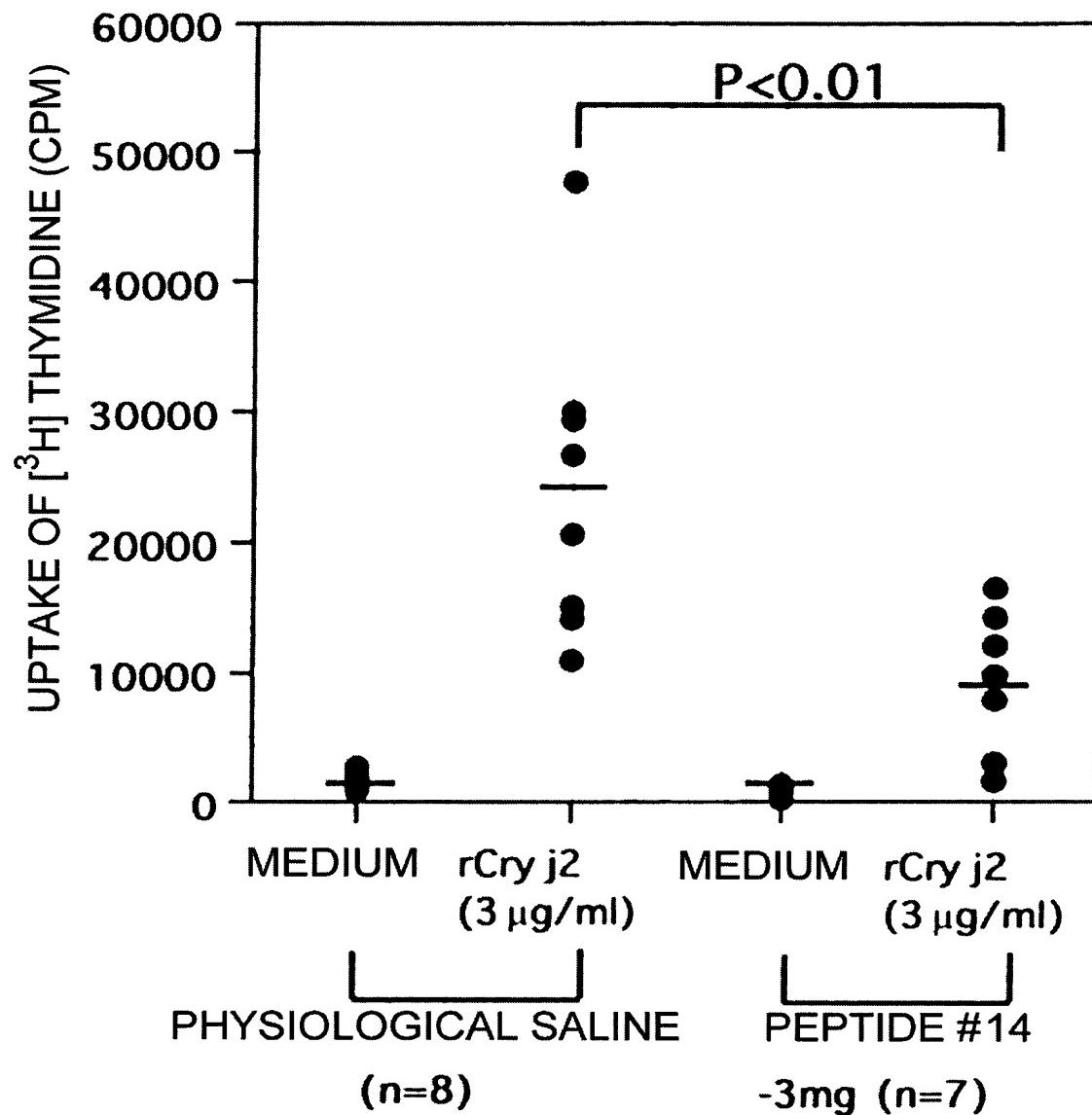


FIG. 13

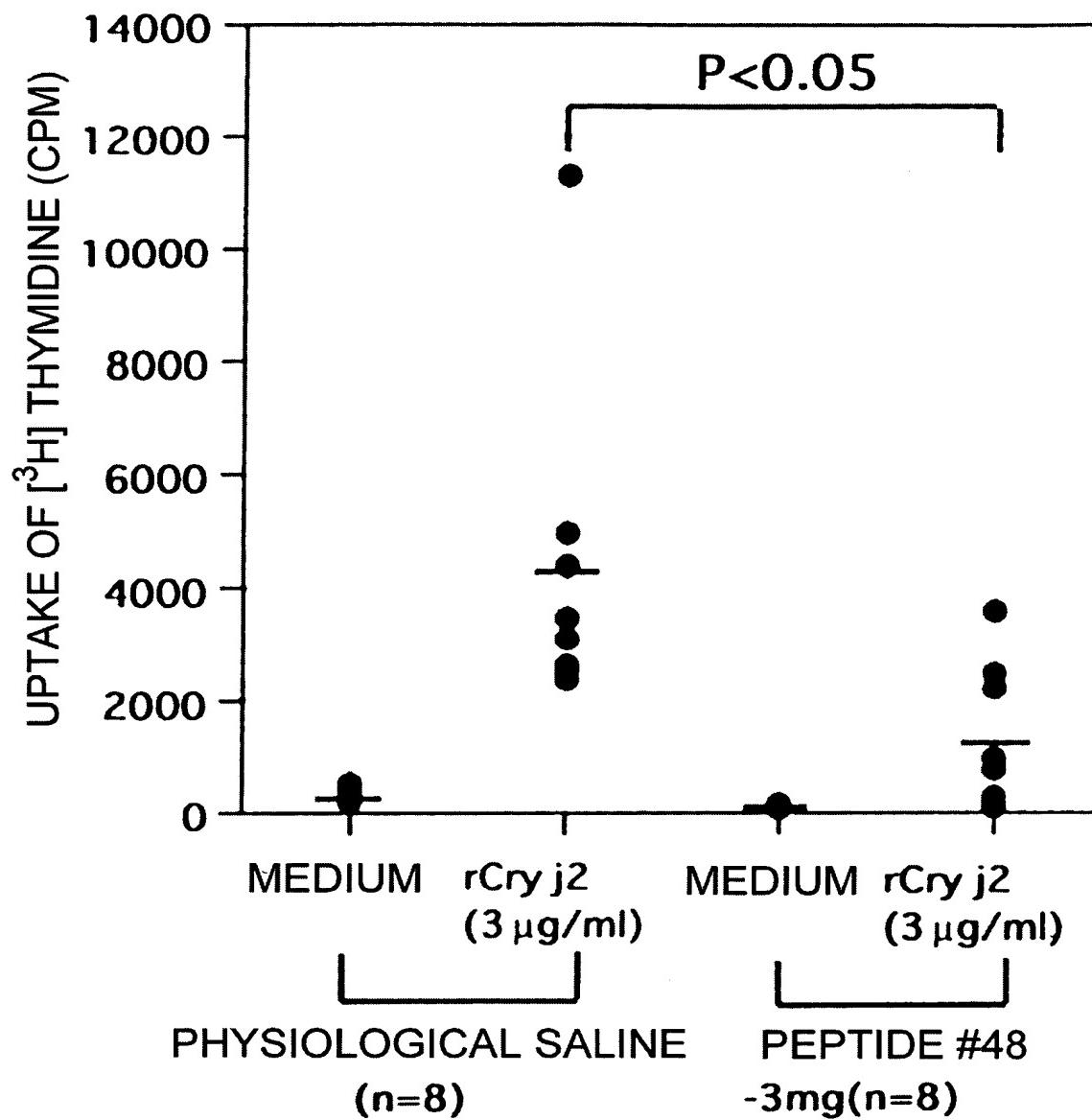
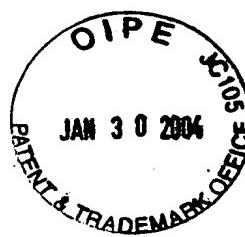


FIG. 14



T CELL CLONE

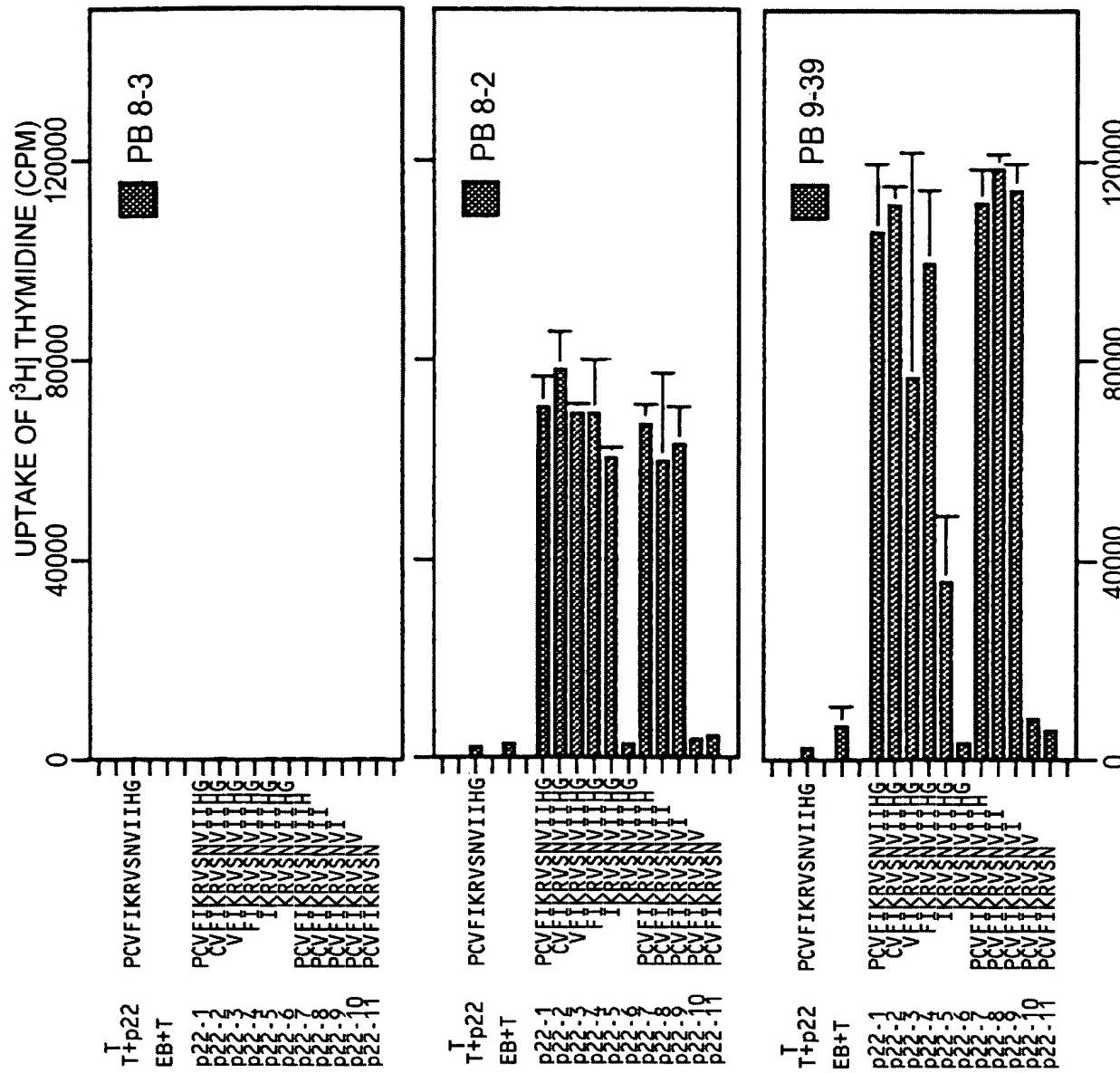


FIG. 15 (1)

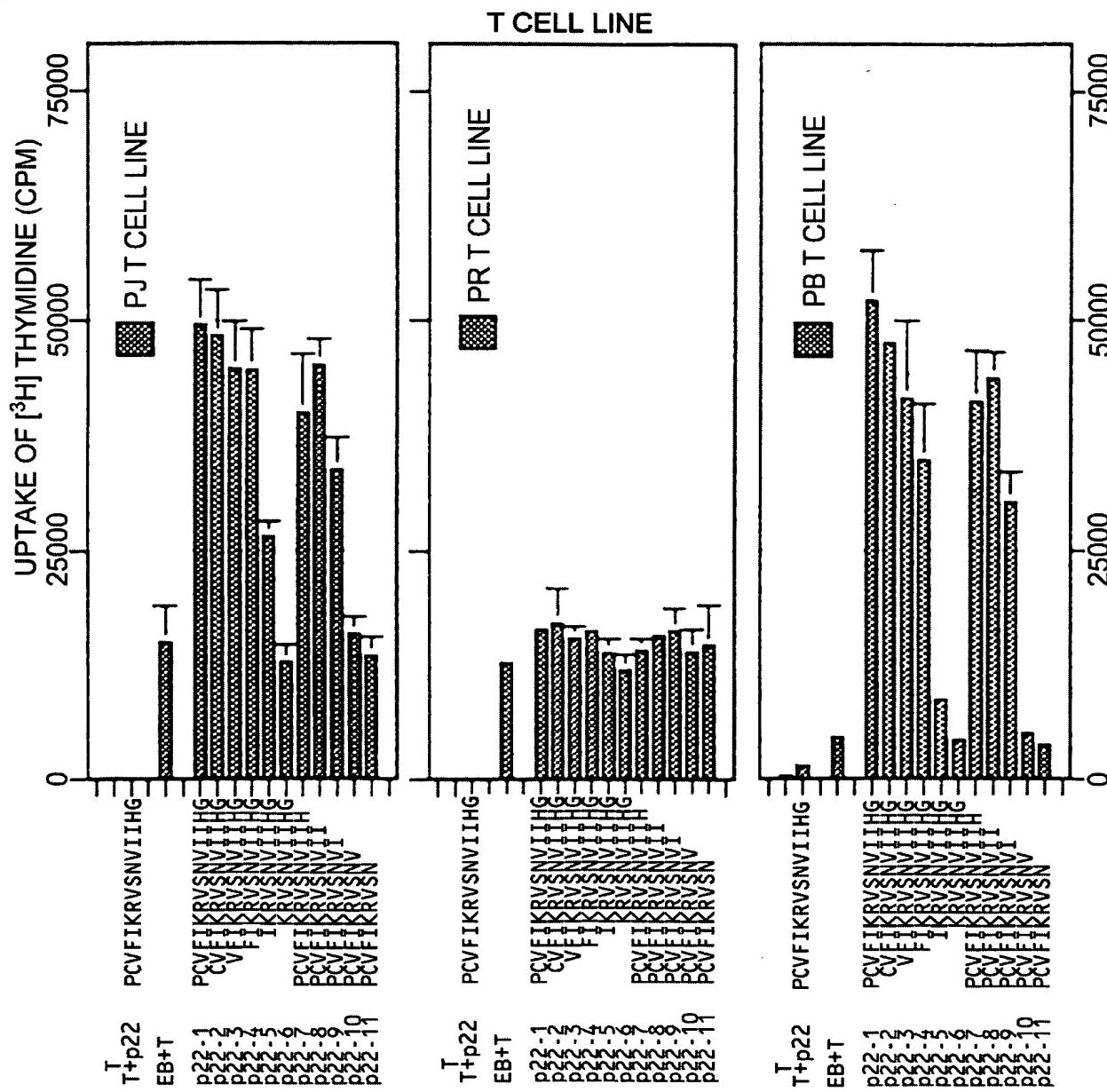


FIG. 15 (2)

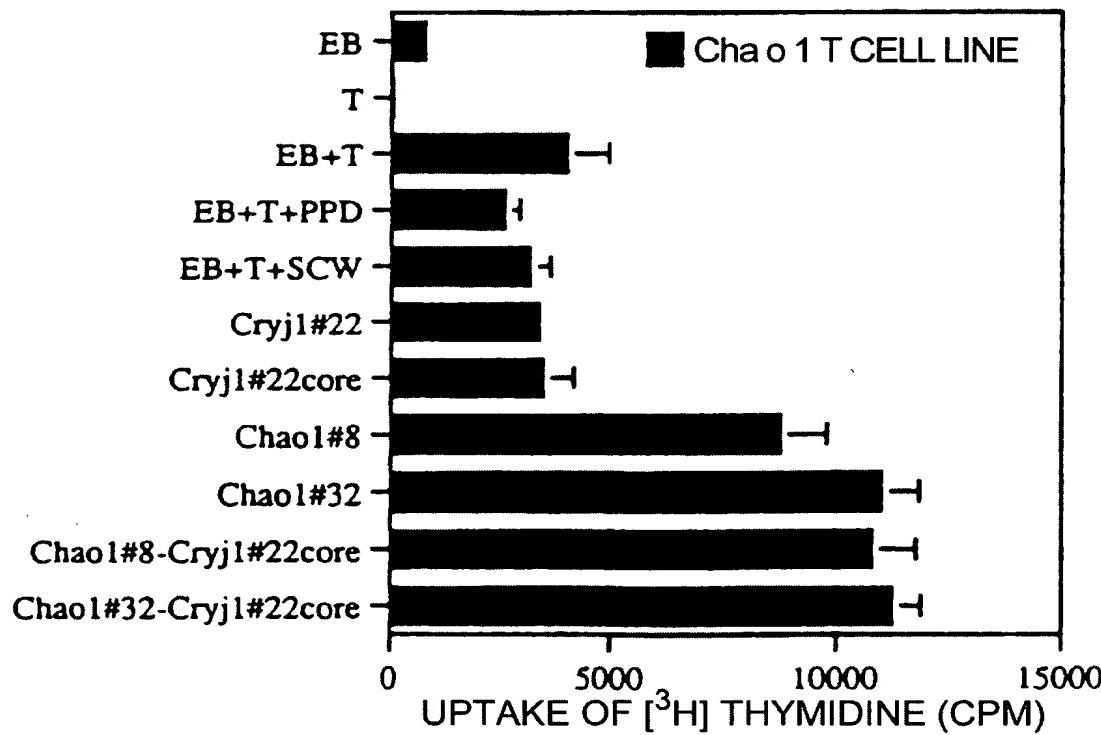
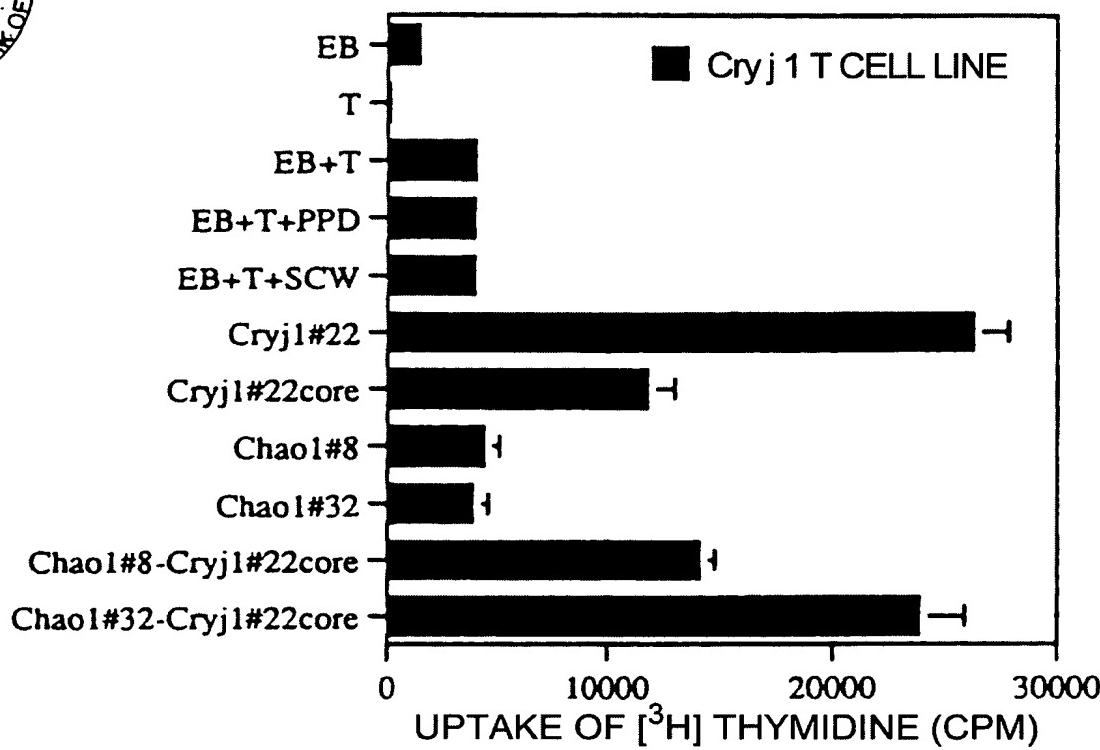


FIG. 16

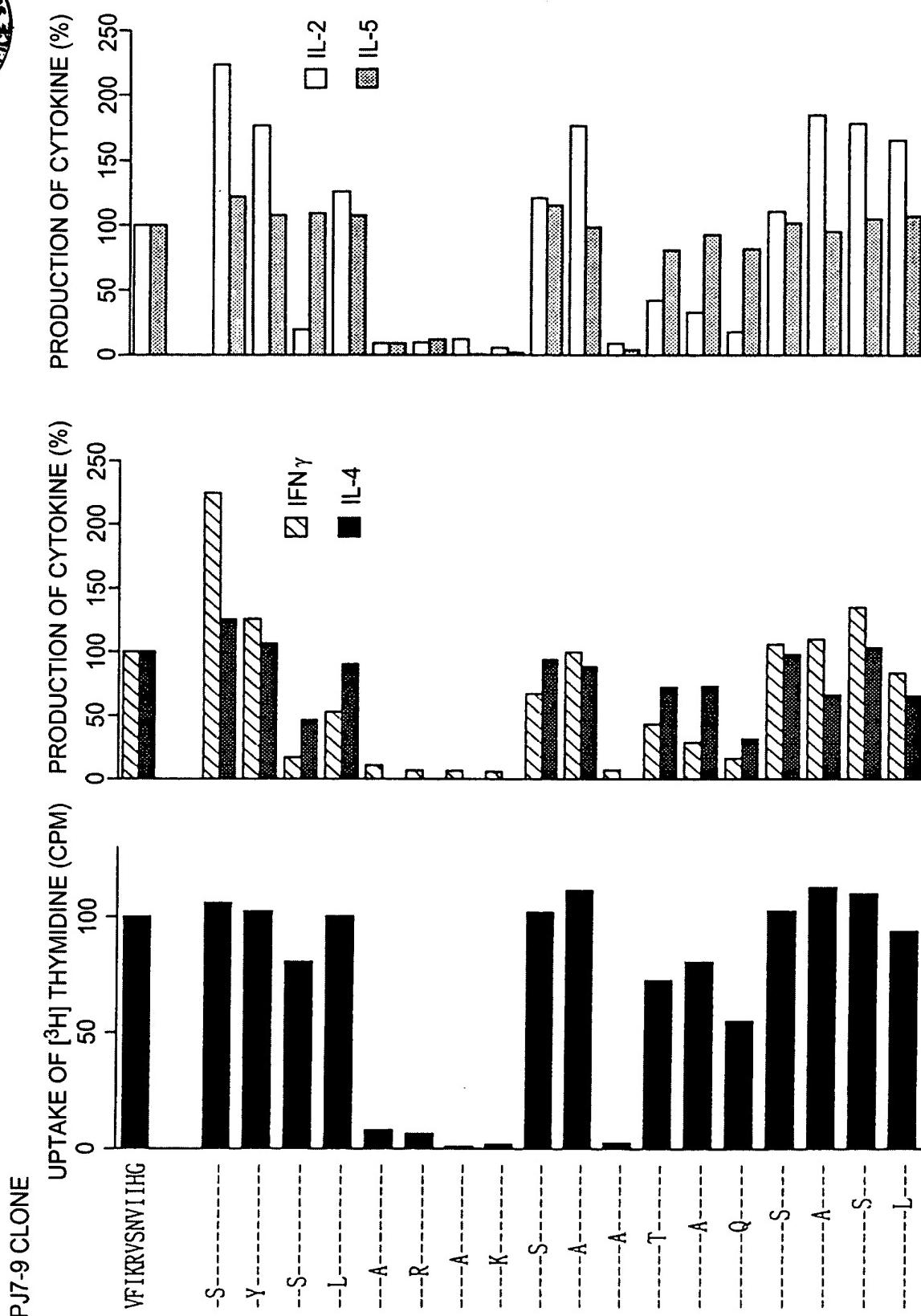


FIG. 17

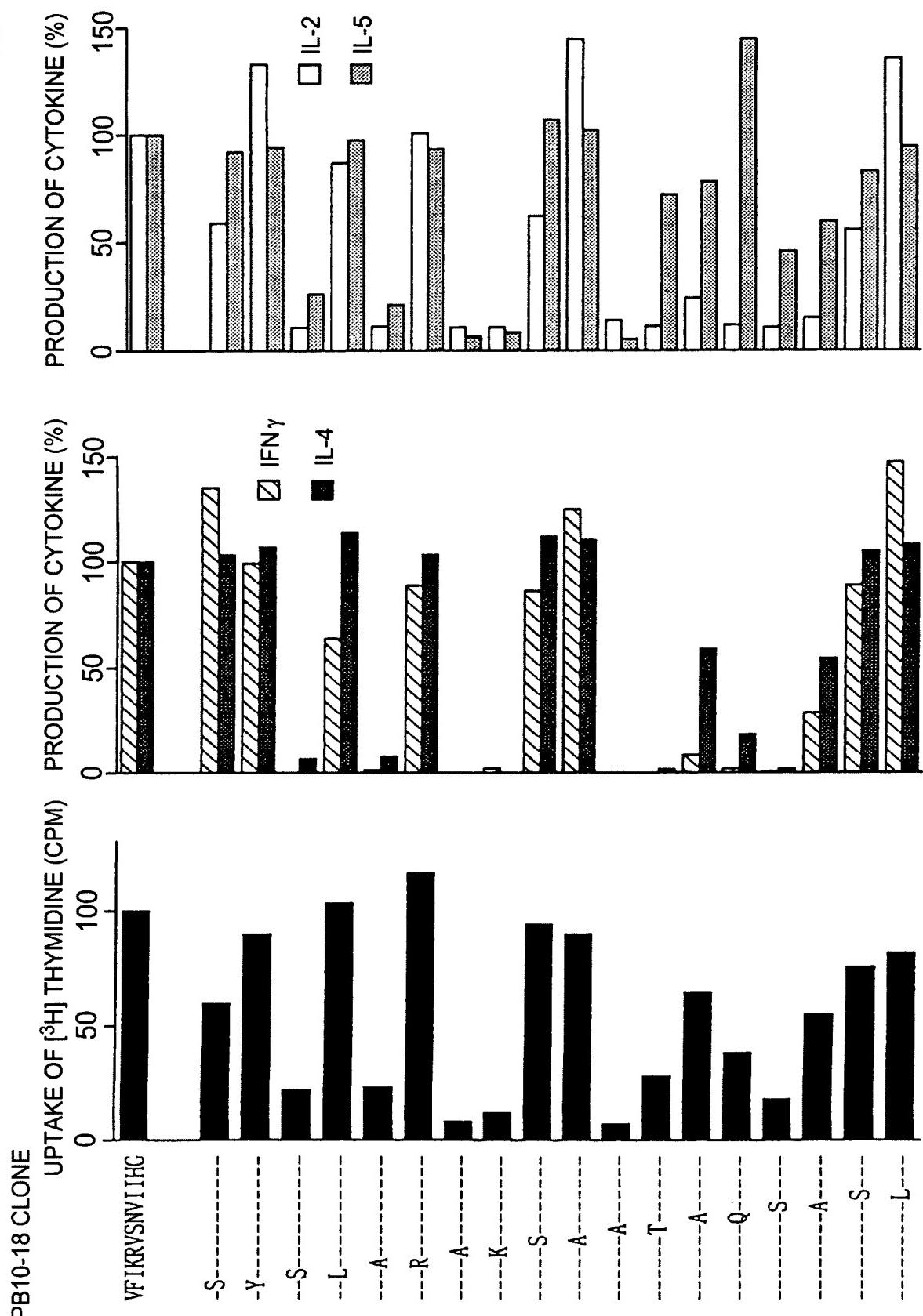


FIG. 18